

W6IFE San Bernardino Microwave Society Newsletter

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The 6 **May 1999** meeting of the SBMS will have Dick, K6HIJ tell us about the orthomode transducer (polarplexer) and how to build it. Note the revived interest via the San Diego Microwave Group using it with modified Qualcomm gear. The SBMS meets at the American Legion Hall 1024 Main Street (south of the 91 freeway in Corona, CA at 1900 hours local time on the first Thursday of each month..

Last meeting Spring school break and rain cut the attendance to 16 people. Welcome to new members Skip Alminas K6LGL of Santa Monica; John Gibson KC6YVS of Ontario and John Stephensen KD6OZH of Los Angeles. Thanks to the outgoing officers: President Dick Bremer, WB6DNX; VP Ken Halford, WB6DTA; Recording Sec Dick Kolbly, K6HIJ; Corresponding Sec Larry Johnston, K6HLH; Treasurer Dick Kolbly, K6HIJ; Editor Bill Burns WA6QYR. New officers were elected: President Jeff Fort, KN6VR ; VP Dick Bremer, WB6DNX; Recording Secretary Mel Swanberg, WA6JBD; Corresponding Secretary Kurt Geitner, K6RRA; Treasurer Dick Kolbly, K6HIJ; and Newsletter Editor Bill Burns, WA6QYR. The SBMS Plaque for 1st place in the 10 GHz and Up category of the ARRL 10 GHz and Up contest was presented to Bill, WA6QYR by president Dick Bremer. The SBMS plaque for 1st place in the 10 GHz only category will be presented to Ronald Hranac Jr., N0IVN of Littleton, CO by long time SBMS member Phil Lee, W6HCC who now lives in Colorado. The talk by Dave, WA6CGR on his 24 GHz rig was more on what things that work on lower bands don't work at 24 GHz. The tweaking of 24 GHz hardware built in the 80-90's by snowflake (8-10 mil sq. metal plate on end of tooth pick) is tough since so many of the stages have to be covered to prevent interaction of hand capacitance. A 50

ohm line is only 2 mils wide on alumina substrate. SMA connectors don't work unless they are the 3.5 or K connectors which have a different dielectric inside. Most coax if it is rated up to 18 GHz doesn't work at 24 GHz. TR relays have like 2 dB loss. Need every thing regulated inside a rig. Any voltage variation seems to move frequency and gains that were so hard to get in the first place get less. Thanks Dave. Ed's, W6OYJ talk and demonstration about the 2 GHz rig will be appearing in the next Microwave Update Hamfest proceedings. Ed, W6OYJ has been having fun with a modified Qualcomm modulated TCXO and synthesizer LO (25 mw) at 2 GHz, a converted TVRO LNA, a polarplexer antenna and 144 MHz HT receiver to run full duplex narrowband FM on 2.3 GHz. The design comes from work by the San Diego Microwave Group; Kerry, N6IZW on the LNA; Chuck, WB6IGP on the modulation of the TCXO and Ed on the polarplexer. So far over 2 miles with better than 40 dB s/n. The polarplexer is used as in the old SBMS ROCKLOC days with the transmit polarization 45 degrees off vertical to the right in the direction of transmission. Hills Brothers coffee cans have fewer ridges and a paper cover rather than other brands with painted sides when being concerned on how to solder the N connectors to the side of the can at the 1/4 and 3/4 guide wavelength positions at 90 degree axis rotation positions. The can probes want to be tuned for 2375 half way between the transmit and received frequencies. There is better than 35 dB isolation between the probes. Thicker probes are broad band. The modified TVRO LNA needs to be used carefully since in some cases the LO is also amplified and could burn out the mixer diode. Chuck, WB6IGP came up with a way to remove the cover off the TCXOs used in Qualcomm gear and modulate the oscillator with audio from an electronet microphone. Thanks Ed. Kerry N6IZW was to have come to the meeting with Ed, but a health problem came up and he thought it best to stay in San Diego. Hope he is better by this time.

It was proposed that the last Saturday in July (31st) [following TRW swapmeet] be another picnic/ rig measuring event at the Costa Mesa park (Fairview Park) from 11 to 3. This will be another join SBMS and San Diego Microwave Group adventure. More details later.

Scheduling-

June 3 Derek KN6TD, broadband 10 GHz digital repeater.

July 1 TBD

July 31 picnic-- antenna/rig tune up

Aug. 5 TBD

Aug. 21-22 ARRL 10 GHz and Up contest 1st half

Wants and Gots for Sale

Free- 4 ft fiberglass dish and radome (was on 12 GHz). Pick up in Brea Dick WB6DNX 714-529-2800

Wanted WR-42 waveguide switch Dave Glawson, WA6CGR 909-612-5888

Activity reported at the 1 April SBMS meeting- Dick WB6DNX tuned up some Qualcomm oscillators; Chuck, WA6EXV is finishing up the design of a 2.3 GHz power amp which is linear out to 8 w for 10v@1.6 a input; Bill WA6QYR is working on frequency standards using the 60 KHz WWVB signals and a design from RSBG; Ed, W6OYJ has been having fun with a Qualcomm synthesized modulated LO (25 mw) at 2 GHz a polarplexer antenna and 144 MHz HT receiver to run full duplex narrowband FM on 2.3 GHz. The design comes from work by the San Diego Microwave Group Kerry, N6IZW on the LNA; Chuck WB6IGP on the synthesizer and Ed on the polarplexer. So far over 2 miles with better than 40 dB s/n. Jeff, KN6VR has a new 1296 MHz dish feed; Mel, WA6JBD still working on radios for Cactus and 47 GHz rig parts with K6JEY; Skip, K6LGL is looking for a better 1296 MHz feed since he is running a net on 1296.1 MHz; Joe, K6IBY has to rework his 432 MHz antennas bent from wind; John, KD6OZH has moved to a rubidium standard for 10 and 24 GHz , reworked KK7B receiver and is writing an article for QEX on the rig; Gary, W6KVC received some new chips for his 2

GHz rig and is getting ATV ready for the Baker to Las Vegas Police Officers Race; Dave, WA6CGR has a design for a 125 w 1296 MHz amp on G200 board using some new Ericson transistors 9 dB gain on 26 V.

COLORBLIND By John Anderson WD4MUO

In the May 1999 QST column "The World Above 50 MHz" the following statement regarding VHF and above DX records appears:

"One change has been made in record-keeping criteria. For the time being, the frequencies above 300 GHz will be divided into just two bands for record purposes, even though the FCC makes no such distinction. Radio from 1000 to 100 μ m (300 to 3000 GHz) will constitute a single micrometer radio band. Infrared, visible and ultraviolet wavelengths from 100 μ m to 10nm will comprise the light band. Previous recognitions based on the color of visible light have been dropped because of the proliferation of separate claims. Thus, a single light record remains in the table. DX records at shorter wavelengths will not be considered."

To my mind this is analogous to declaring the 2,200, 160, 80, 40, 30, 20, 17, 15, 12, 10, and 6 m amateur bands 'The HF Band' and only recognizing a single DXCC category, a single contest entry, etc. for the conglomerate band.

It is exactly the wrong time to consolidate 'bands', we should be expanding bands to foster exploration, experimentation and advancing the state-of-the-art - items that Hams have taken pride in for 100 years (quite possibly incorrectly for the past 30 to 40 years!). We need to support the very few individuals currently working at this end of the spectrum and encourage more to join them. This action is a step backwards. It stifles experimentation, providing no added incentive to explore, no recognition of new 'band' achievements, and no reason to add new bands to increase contest scores (if we do not recognize light band divisions, the contest rules will never include them). Given this division, one might as well dig back in the pile of Scientific American magazines and build the megawatt, pulsed, gas dynamic/flow job described in "The Amateur Scientist" many years ago, or just buy a surplus CO2 laser, and blast away at the record, airplanes and birds.* Complying with the safety regulations imposed by the federal government will probably be easier than educating the Amateur Radio bureaucracy on optical physics.

I know there are perceived problems with the multiple wavelengths generated by certain lasers, but this should be addressed and resolved; we should not turn a blind eye because the issue is complex or contentious. We need at an absolute minimum: IR, visible, and UV categories. I believe that a case can be made for three bands in the IR region, two or three in visible, and one at UV - at least "for the time being." Alternative schemes have been proposed, one is that the light region be divided into bands by atmospheric windows. Almost any division will serve us better than a 'blob band'.

The proliferation of record claims in the light region is cited for dropping individual band/frequency records. Well, consider that:

- the North American DX Record listing in itself is a proliferation to appease our egos. It may actually be detrimental to furthering the state of North American microwave art as in several cases we are shooting for a 'local' record that is not even close to the world record. Printing both the NA and world records together would show just where our vaulted state-of-the-art is. It may open some eyes (and might motivate a few more people on this side of the ponds).

- on the lower bands, records are recognized for: Aurora, Auroral-E, FIA, Meteors, Sporadic E, TE, Tropo (P), Tropo (C), and Tropo (A); in addition there are EME records. Talk about proliferation. Why is it that people who can differentiate between Aurora and Auroral-E, cannot see the difference between red and blue?

If the announced policy change is not revoked (or if the work is too much for one person), I believe that some organization (or person) should preserve current, compile new, and publish (on the Internet?) the dropped records so that experimenters on the various light bands have goals to surpass.

*No need for one of those expensive, cryogenically cooled, HgCdTe detectors, just count a flock of geese a dot and a 737 a dash; and don't worry about the need for one stage of electrical detection, a \$10 geophone and your hi-fi should be able to tell the difference in thuds between a bird and a Boeing as they auger in.

Off the WEB--Hello everybody, At last night's meeting of the Microwave group of San Diego, I agreed to send all our group a list of web pages related to amateur radio microwave. Also I will show how to sign up for the San Bernardino Microwave Society (SBMS) "Reflector" which broadcasts short items , of MICROWAVE INTEREST ONLY, to those who subscribe. Note that many of these pages have links to other pages, especially G3HPO's page has a huge number of links. So here goes:The SBMS Web page: <http://www.ham-radio.com/sbms/>To subscribe to the SBMS Microwave Reflector send email to "sbms-request@ham-radio.com" with your name, email address, and a request to either subscribe or be removed . To send email for broadcast on the reflector, you must be a subscriber. The mail must be brief. no spam allowed. send to: "sbms@ham-radio.com"The W6OYJ, San Diego Microwave home page is at <http://ourworld.compuserve.com/homepages/edmunnn> "N1BWT Paul Wade page: <http://www.tiac.net/users/wade> "W6BY Brian Yee page: http://reality.sgi.com/byee_mti/w6by.html"G3PHO World Above 1000 MHz page: <http://www.geocities.com/SiliconValley/Vista/7012/ghz.htm> "SM6LKM page: <http://home.swipnet.se/~w~41522/> "Down East Microwave: " <http://downeastmicrowave.com>"SHF Microwave Parts Co: <http://www.shfmicro.com> "**** All of these worked when I surfed them this morning. 73s and have fun!! Ed, W6OYJ

KF6KVG has placed two new beacons in operation on 10 and 24 GHz in Northern California. Both are low power, continuous carrier with FM voice ID at 1 minute intervals.Location: Mt Umuhnum, CM97AE, 3400 Ft ASLFrequency: 10367.990 MHz 24191.977 MHzThe 10 GHz beacon has been heard at S9 in CM88SI using an 18 inch offset feed dish. Send reception reports via snail mail to Bob Johnson, KF6KVG. Other Northern California beacons are:Mt VACA on 10368.325 Mt St. Helena on 10368.018 73, Steve K2IYQRules, ARRL 10-GHZ And Up Cumulative Contest . General Rules 1. Object: North American amateurs work as many amateur stations in as many different locations aspossible in North America on bands from 10-GHz through Light.2. Date and Contest Period: Third full weekend of August and September. For 1999 the contestdates are August 21-22 and September 18-19. Operations may take place for 24 total hours duringeach contest weekend. Each weekend begins at 6:00 AM local Saturday and runs through 12:00 midnight local Sunday. Listening time counts as operating time. Times off must be clearly indicated in the log.from <http://www.arrl.org/contests/announcements/99/rules-10ghz.html>"... Zack Lau, W1VT

73's Bill